

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Canceled)
2. (Currently amended) The isolated polynucleotide molecule of claim 33,
wherein said pigment proteinPPCT has a maximal absorbance of said incident light in at the
range of 550-580 nm, and a maximal fluorescence emission in the range of 400-630 nm.
3. (Currently amended) TheAn isolated polynucleotide molecule of claim 33,
comprising a nucleotide sequence encoding a pigment protein from coral tissue (PPCT),
wherein said pigment proteinpolynucleotide molecule comprises a nucleotide sequence
encoding a protein having the as its N-terminal amino acid sequence[[:]]] SVIAK (SEQ ID
NO:1).
4. (Currently amended) TheAn isolated polynucleotide molecule of claim
33comprising a nucleotide sequence encoding a pigment protein from coral tissue (PPCT),
wherein said pigment proteinpolynucleotide molecule comprises a nucleotide sequence
encoding a protein having the as its N-terminal amino acid sequence[[:]]]
SVIAKQMTYKVYMSGTV (SEQ ID NO:2).

5. (Currently amended) The isolated polynucleotide molecule of claim 334, 2, 3 or 4, wherein said pigment protein PPCT comprises a chromatophore region comprising the amino acid sequence: QYG.

6. (Currently amended) The isolated polynucleotide molecule of claim 335, wherein said polynucleotide molecule ~~encodescomprises a nucleotide sequence encoding a protein having the an amino acid sequence set forth in corresponding to the sequence shown as SEQ ID NO:3 or SEQ ID NO:4.~~

7. (Currently amended) The isolated polynucleotide molecule of claim 335, wherein said polynucleotide molecule comprises a nucleotide sequence which has at least 80% identity ~~with to the sequence shown as~~ SEQ ID NO:5 or 6.

8. (Currently amended) The isolated polynucleotide molecule of claim 7, wherein said polynucleotide molecule comprises a nucleotide sequence which has at least 90% identity ~~with to the sequence shown as~~ SEQ ID NO:5 or 6.

9. (Currently amended) The isolated polynucleotide molecule of claim 7, wherein said polynucleotide molecule comprises a nucleotide sequence which has at least 95% identity ~~with to the sequence shown as~~ SEQ ID NO:5 or 6.

10. (Currently amended) The isolated polynucleotide molecule of claim 7, wherein said polynucleotide molecule comprises thea nucleotide sequence set forth in substantially corresponding to the sequence shown as SEQ ID NO:5 or 6.

11.-16. (Canceled)

17. (Currently amended) A vector comprising thea polynucleotide molecule of claim 331, 2, 3 or 4.

18. (Original) A host cell transfected or transformed with the vector of claim 17.

19.-32 (Canceled)

33. (New) An isolated polynucleotide molecule comprising a nucleotide sequence selected from the group consisting of:

SEQ ID NO:5, SEQ ID NO:6, a nucleotide sequence having at least 80% identity with SEQ ID NO:5, a nucleotide sequence having at least 80% identity with SEQ ID NO:6, a nucleotide sequence capable of hybridizing under high stringency conditions to the complementary strand of SEQ ID NO:5, and a nucleotide sequence capable of hybridizing under high stringency conditions to the complementary strand of SEQ ID NO:6, wherein said polynucleotide molecule encodes a pigment protein.

34. (New) The isolated polynucleotide molecule of claim 33, wherein said pigment protein has a maximal absorbance of incident light in a range of 320-600 nm.

35. (New) The isolated polynucleotide molecule of claim 33 or 34, wherein said pigment protein has a maximal fluorescence emission in a range of 300-700 nm.

36. (New) The isolated polynucleotide molecule of claim 33, 34 or 2, wherein said pigment protein has a maximal fluorescence emission in a range of 400-630 nm.

37. (New) The isolated polynucleotide molecule of claim 33, wherein said pigment protein is found in coral tissue from a coral family selected from the group consisting of: Pocilloporidae, Acroporidae, Poritidae, Faviidae, Merulinidae and Fungiidae.

38. (New) The isolated polynucleotide of claim 37, wherein said coral tissue is selected from the group consisting of: *Acropora aspera*, *Acropora digitifera*, *Acropora horrida*, *Acropora formosa*, *Montipora monasteriata*, *Montipora caliculata*, *Pocillopora damicornis*, *Porites murrayensis*, *Porites lobata*, *Plesiastrea versipora* and *Seriatopora hystrix*.

39. (New) The isolated polynucleotide of claim 38, wherein said coral tissue is from: *Acropora aspera*, *Acropora horrida*, *Montipora monasteriata*, *Montipora caliculata*, *Porites murrayensis*, *Porites lobata* and *Plesiastrea versipora*.

40. (New) The host cell of claim 18, wherein the host cell is a plant cell.

41. (New) A process for producing a pigment protein, wherein the process comprises the step of cultivating a host cell transfected or transformed with the vector of claim 18 under conditions suitable for expression of the pigment protein, and recovering the pigment protein from the host cell.